

marked-up pages. A clean copy of the amended claims is also enclosed.

**REMARKS**

The above amendments were made to place the application into proper United States Patent Format.

Respectfully Submitted,



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Clean copy of addition to specification on page 2, after line 32

#### Brief Description of the Drawings

- Fig. 1 - the sequence of SBP promoter;
- Fig. 2a - Northern blot of *Vicia faba* against VFSBP20 probe;
- Fig. 2b - cross-section of ripe Transgenic (SBPRGUS) tobacco seed;
- Fig. 2c -  $\beta$ -glucuronidase content in transgenic pSBPRGUS tobacco line;
- Fig. 3 - restriction maps of clone pSBPR7 and pSBPR15;
- Fig. 4 - a graft of plasmid pGPTV-Bar;
- Fig. 5 - a graft of the 3' untranslated area of promoter region with the polyadenylation signals of the octopine synthase gene;
- Fig. 6 - a graft of the smoothed Asp719/SphI fragment ligated with the binary vector pGPTV-Bar from plasmid pSBRXYNZ;
- and
- Fig. 7 - Western Blot of protein extract from ripe seed with Xylanase Z directed antibodies.

#### Detailed Description of the Preferred Embodiments

Clean copy of amended page 4 of the specification

The nucleotide sequence of the expression cassette contains transcriptionally regulatory areas, guaranteeing a strong specific expression of an arbitrary gene into the seed of plants. The Northern blot (Fig. 2a) shows the high seed-specific expression in the various tissues of *Vicia faba*. The GUS data in Figs. 2b and 2c show on the one hand the distribution of the  $\beta$ -glucuronidase in the sections through ripe tobacco seeds and, on the other, the accumulation of the  $\beta$ -glucuronidase in the transgenic tobacco seeds as a function of development.

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## Amended Claims - marked-up Copy

1. (amended) ~~Promoter~~ A promoter for expression of arbitrary  
5 genes in plant seeds, ~~wherein there exists the sequence of~~  
~~Fig. 1a, which thus becomes the object of the claim.~~
2. (amended) ~~Promoter~~ The promoter according to claim 1,  
10 wherein it mediates the expression in the cotyledons and in  
the endosperm of seeds as a function of development.
3. (amended) ~~Expression~~ An expression cassette for expression  
of arbitrary genes in the plant seed, ~~containing comprising:~~  
15
  - a promoter according to claim 1 ~~or 2~~,
  - a gene ~~to be capable of being expressed~~
  - 3' termination sequences.
4. (amended) ~~Expression~~ The expression cassette according to  
20 claim 3, ~~wherein it additionally contains the further~~  
~~comprising a DNA sequence of a signal peptide, preferably~~  
~~the SBP signal peptide.~~
5. (amended) ~~Expression~~ The expression cassette according to  
25 claim 3, ~~wherein further comprising a further second DNA~~  
~~sequence is downstream to the a DNA region provided with a~~  
~~transcriptionally regulatory sequence for a strong seed-~~  
~~specific gene expression, the latter DNA region containing~~  
~~the information for the formation and quantitative~~  
30 ~~distribution of endogenous products or the expression of~~  
~~heterologous products in culture crops.~~
6. (amended) ~~Expression~~ The expression cassette according to  
~~claims 3 to 5~~ claim 3, wherein arbitrary foreign genes are

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integrated either as transcription or as translation fusions.

- 5 7. (amended) Expression ~~The expression cassette according to~~  
~~claims 3 to 6~~ claim 4, wherein the signal peptide ~~of the is~~  
coded by a SBP seed protein gene is used as a signal  
peptide.
- 10 8. (amended) Expression cassette according to ~~claims 3 to 7,~~  
wherein the gene ~~of the is~~ capable of coding for a sucrose  
binding protein like gene ~~is used as the gene to be~~  
expressed.
- 15 9. (amended) Expression ~~The expression cassette according to~~  
~~claims 3 to 8~~ claim 3, wherein it is also used for co- and  
multiple transformations.
- 20 10. (amended) Plasmids containing an expression cassette  
~~according to claims 3 to 8~~ for expression of arbitrary  
genes in the plant seed, comprising  
• a promoter according to claim 1  
• a gene capable of being expressed  
• 3' termination sequences.
- 25 11. (amended) Plasmid pSBPROCS ~~The plasmid according to claim~~  
10, wherein the plasmid is pSBPROCS comprising a DNA se-  
quence about 5.3 kb in size, ~~in which the DNA sequence~~  
comprising a SalI promoter fragment of the regulatory  
starter area about 1.9 kb in size including the signal  
30 peptide and 5 triplets of ~~the a~~ a SBP-homologous gene of  
Vicia faba, restriction sites for cloning of foreign genes  
and the a transcription terminator of the octopine synthase  
gene are contained.

12. (amended) Plasmid pPTVSBPRGUS The plasmid according to claim 10, wherein the plasmid is pPTVSBPRGUS comprising a DNA sequence about 14.9 kb in size, in which comprising a phosphinothricin resistance gene about 1 kb in size, a  
5 Sall/NcoI promoter fragment of the regulatory starter area of the SBP-like gene of Vicia faba about 1.8 kb in size, the coding region of the  $\beta$ -glucuronidase about 2 kb in size and the transcription terminator of the octopine synthase gene are contained.

13. (amended) Method for the an insertion of an expression cassette according to claims 3 to 9 for expression of arbitrary genes in the plant seed, comprising a promoter according to claim 1, a gene capable of being  
15 expressed and 3' termination sequences with a DNA sequence for strong seed-specific gene expression into a plant cell, comprising the following steps:

- a) isolation of isolating a clone VfSBP20, wherein the gene coding for the SBP seed protein occurring in the  
20 plant seed is selected from a cDNA Bank of cotyledons of Vicia faba,
- b) isolation of isolating a clone pSBPR15, wherein the a DNA sequence contained therein comprises the regulatory starter region of the SBP seed protein gene of Vicia  
25 faba and a sequence from a related legume hybridising with the DNA sequence of the SBPR15,
- c) production of the producing a plasmid pSBPOCS making use of by isolating and closing the Sall fragment of  
30 plasmid pSBPR15 1.9 kb in size,
- d) integration of integrating foreign genes into the pSBPOCS expression cassette,
- e) cloning of the expression cassette containing a DNA sequence for over-expression of foreign genes in plant seeds into binary vectors

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f) ~~transfer of transferring~~ the expression cassette containing ~~an the~~ foreign gene under the control of the promoter ~~according to claims 1 or 2~~ into a plant cell for expression of arbitrary genes in plant seeds.

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~~14. Use of an expression cassette according to claims 3 to 9 for expression of homologous and heterologous genes in the seeds of transformed plants.~~

10 ~~15. Use of an expression cassette according to claims 3 to 9 for expression of genes changing the storage capacity or the germination capability of seeds.~~

15 ~~16. Use of the plasmids pBISBPR7, pBISBPR15, pSBPCUS, pPTVSBPRCUS and pSBPOCS or derivatives thereof for transformation of culture crops.~~

20 ~~17. Use of the plasmids pBISBPR7, pBISBPR15, pSBPCUS, pPTVSBPRCUS and pSBPOCS or derivatives thereof for regulation of endogenous processes or for production of heterogenous products in culture crops.~~

25 ~~18. Use of an expression cassette according to claims 3 to 9, wherein the transformed plants expressing new gene products or such altered in the seeds are selected, genetically stable lines are bred and the gene products are extracted from the seeds of the transgenic plants.~~

30 19 (amended) Plant cell containing a plasmid ~~according to claims 10 to 12~~ containing an expression cassette for expression of arbitrary genes in the plant seed, comprising a promoter according to claim 1, a gene capable of being expressed and 3' termination sequences.



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20. ~~(amended) Plant cell produced according to the~~ The  
method of claim 13, wherein a plant cell is produced.

5 21. (amended) Plant or plant tissues regenerated from a plant  
cell ~~according to claims 14 or 15~~ based on an expression  
cassette for expression of homologous and heterologous  
genes in the seeds of transformed plants, comprising a  
promoter according to claim 1, a gene capable of being  
expressed, and 3' termination sequences.

10 22. ~~(amended) Plant according to claim 14~~ 21, wherein it is a  
culture crop.

15 23. ~~Use of the DNA sequence of the SBP signal peptide in an expression cassette for expression  
of arbitrary genes in plant seed.~~

24. (New) The expression cassette according to claim 4, further  
comprising a DNA sequence of a SBP signal peptide.

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## Amended Claims - Clean Copy

- 5 1. (amended) A promoter for expression of arbitrary genes in plant seeds.
2. (amended) The promoter according to claim 1, wherein it mediates the expression in the cotyledons and in the endosperm of seeds as a function of development.
- 10 3. (amended) An expression cassette for expression of arbitrary genes in the plant seed, comprising:
  - a promoter according to claim 1,
  - a gene capable of being expressed
  - 15 • 3' termination sequences.
4. (amended) The expression cassette according to claim 3, further comprising a DNA sequence of a signal peptide.
- 20 5. (amended) The expression cassette according to claim 3, further comprising a second DNA sequence downstream to a DNA region provided with a transcriptionally regulatory sequence for a seed-specific gene expression, the DNA region containing information for the formation and quantitative distribution of endogenous products or expression of heterologous products in culture crops.
- 25 6. (amended) The expression cassette according to claim 3, wherein arbitrary foreign genes are integrated either as transcription or as translation fusions.
- 30 7. (amended) The expression cassette according to claim 4, wherein the signal peptide is coded by a SBP seed protein gene.

8. (amended) Expression cassette according to, wherein the gene is capable of coding for a sucrose binding protein like gene.
- 5 9. (amended) The expression cassette according to claim 3, wherein it is also used for co- and multiple transformations.
- 10 10. (amended) Plasmids containing an expression cassette for expression of arbitrary genes in the plant seed, comprising
- a promoter according to claim 1
  - a gene capable of being expressed
  - 3' termination sequences.
- 15 11. (amended) The plasmid according to claim 10, wherein the plasmid is pSBPROCS comprising a DNA sequence about 5.3 kb in size, the DNA sequence comprising a SalI promoter fragment of the regulatory starter area about 1.9 kb in
- 20 size including the signal peptide and 5 triplets of a SBP-homologous gene of *Vicia faba*, restriction sites for cloning of foreign genes and a transcription terminator of the octopine synthase gene.
- 25 12. (amended) The plasmid according to claim 10, wherein the plasmid is pPTVSBPRGUS comprising a DNA sequence about 14.9 kb in size, comprising a phosphinothricin resistance gene about 1 kb in size, a SalI/NcoI promoter fragment of the regulatory starter area of the SBP-like gene of *Vicia faba*
- 30 about 1.8 kb in size, the coding region of the  $\beta$ -glucuronidase about 2 kb in size and the transcription terminator of the octopine synthase gene.

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13. (amended) Method for an insertion of an expression cassette for expression of arbitrary genes in the plant seed, comprising  
5 a promoter according to claim 1, a gene capable of being expressed and 3' termination sequences with a DNA sequence for seed-specific gene expression into a plant cell, comprising the following steps:

- 10 a) isolating a clone VfSBP20, wherein the gene coding for the SBP seed protein occurring in the plant seed is selected from a cDNA Bank of cotyledons of *Vicia faba*,
- b) isolating a clone pSBPR15, wherein a DNA sequence contained therein comprises the regulatory starter region of the SBP seed protein gene of *Vicia faba* and a sequence from a related legume hybridising with the DNA  
15 sequence of SBPR15,
- c) producing a plasmid pSBPOCS by isolating and closing the Sall fragment of plasmid pSBPR15 1.9 kb in size,
- d) integrating foreign genes into the pSBPOCS expression cassette,
- 20 e) cloning of the expression cassette containing a DNA sequence for over-expression of foreign genes in plant seeds into binary vectors
- f) transferring the expression cassette containing the foreign gene under the control of the promoter for  
25 expression of arbitrary genes in plant seeds.

19. (amended) Plant cell containing a plasmid containing an expression cassette for expression of arbitrary genes in  
30 the plant seed, comprising a promoter according to claim 1, a gene capable of being expressed and 3' termination sequences.

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20. (amended) The method of claim 13, wherein a plant cell is produced.
- 5 21. (amended) Plant or plant tissues regenerated from a plant cell based on an expression cassette for expression of homologous and heterologous genes in the seeds of transformed plants, comprising a promoter according to claim 1, a gene capable of being expressed, and 3' termination sequences.
- 10 22. (amended) Plant according to claim 21, wherein it is a culture crop.
- 15 24. (New) The expression cassette according to claim 4, further comprising a DNA sequence of a SBP signal peptide.